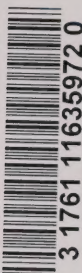


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# M-TRAC

*for rail safety*

## APPEAL

to the

## GOVERNOR IN COUNCIL

in the matter of

A WARNING BY THE BURTON-POST REPORT OF THE POTENTIAL FOR CATASTROPHE  
IN THE METROPOLITAN TORONTO AREA AND CERTAIN RECOMMENDATIONS FOR  
ALLEVIATING THE CHEMICAL RAIL TRAFFIC IN THE HIGH-RISK AREA

and in the matter of

A DECISION BY THE RAILWAY TRANSPORT COMMITTEE OF THE CANADIAN TRANSPORT  
COMMISSION DATED MAY 15, 1985, TO TAKE NO IMMEDIATE ACTION THEREBY IN  
EFFECT DISMISSING THE WARNING

September 1985







# M-TRAC

*for rail safety*

METRO TORONTO RESIDENTS' ACTION COMMITTEE

181 University Avenue, Suite 1802, Toronto, Ontario, M5H 3M7

Telex 065-24481

Phone (416) 365-0301

September 12, 1985

Mr. Paul Tellier  
Clerk of the Privy Council  
Houses of Parliament  
Ottawa K1A 0A3

Dear Mr. Tellier:

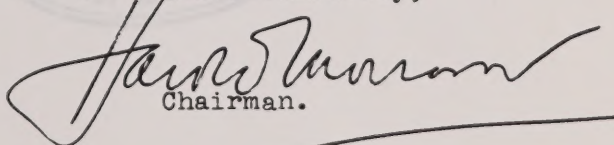
IN THE MATTER of Decision by Canadian Transport  
Commission rejecting findings of Burton-Post  
Report on hazardous goods transport Metro Toronto

We beg leave to submit herewith a plea to the Governor in Council to review the May 15, 1985, Decision of the Railway Transport Committee of the Canadian Transport Commission which, in effect, refuses to act to reduce the very grave risks which exist in Metropolitan Toronto in the haulage of toxic and explosive chemicals by rail through the high-density area.

The Burton-Post Report, attached to this submission, states there is a potential for catastrophe which will only grow worse unless some action is taken. Under the laws of Parliament the Canadian Transport Commission has the obligation of ensuring that the railways of Canada are operated under maximum safety. It is the contention of the M-TRAC organization that the May 15, 1985, Decision was not in keeping with that obligation.

We plead that the Governor in Council give heed to the warnings that another major incident such as that which occurred in the Mississauga area in 1979 may befall the heavily-populated area of Metropolitan Toronto and that steps to reduce the existing risks should be a matter of the highest priority.

Yours sincerely,



Chairman.

enclosures

CC: Honourable Don Mazankowski PC MP  
Minister of Transport



## R E F E R E N C E S

### THE LAW

Chapter N-17 An Act to define and implement a national transportation policy for Canada

Short Title 1. This Act may be cited as the National Transportation Act. 1966-67, c.69, s. 2.


64. (1) The Governor in Council may at any time, in his discretion, either upon petition of any party, person or company interested, or of his own motion, and without any petition or application, vary or rescind any order, decision, rule or regulation of the Commission, whether such order or decision is made inter partes or otherwise, and whether such regulation is general or limited in its scope and application; and any order that the Governor in Council may make with respect thereto is binding upon the Commission and upon all parties.

### THE APPELLANT

M-TRAC for rail safety is an umbrella organization representing some 25 ratepayers' associations in the Metropolitan Toronto area, formed after the Mississauga derailment of 1979 and supported by grants from the municipal governments of Metropolitan Toronto and by the Ontario government, as well as the ratepayers' groups. M-TRAC directors act voluntarily without pay. M-TRAC participated in the Mississauga investigation by Mr. Justice Samuel Grange and has been a Party of Record at public inquiries by the Railway Transport Committee of the Canadian Transport Commission.

- - -





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TO THE GOVERNOR IN COUNCIL  
Houses of Parliament  
Ottawa

IN THE MATTER OF

THE TRANSPORT OF DANGEROUS COMMODITIES BY RAIL  
IN THE TORONTO CENSUS METROPOLITAN AREA:  
A PRELIMINARY ASSESSMENT OF RISK, dated May 1983

and

IN THE MATTER OF

THE DECISION OF THE RAILWAY TRANSPORT COMMITTEE OF THE  
CANADIAN TRANSPORT COMMISSION, dated May 15, 1985,  
dealing with the PRELIMINARY ASSESSMENT OF RISK

THE M-TRAC rail safety organization of Metropolitan Toronto begs leave of the Governor in Council to plead for a review of the contents and impact of the Railway Transport Committee Decision of May 15, 1985, on the basis that the Railway Transport Committee failed to provide maximum safety for the people of Metropolitan Toronto, as required under the law, and failed to give full heed to the warning in the PRELIMINARY ASSESSMENT OF RISK that the potential for catastrophe exists in the Metropolitan Toronto area and this potential will increase unless action is taken to reduce existing risks.

This plea for review--in essence a plea to the Governor in Council to help prevent another major rail catastrophe in the Toronto area--is based on Section 64 (1) of the National Transportation Act 1966-67 which provides the Governor in Council with the power and discretion to vary or rescind any order, decision, rule or regulation of the Canadian Transport Commission.



## OBLIGATION OF MAXIMUM SAFETY

The obligation of protecting the public to the extent of maximum safety is recited by the Railway Transport Committee of the Canadian Transport Commission in its INITIAL REPORT OF THE RAILWAY SAFETY INQUIRY dated April 19, 1972, (APPENDIX I) which states in the opening paragraph:

"Among the duties imposed upon it by the Railway Act and the National Transportation Act, the Railway Transport Committee has the obligation of ensuring that all railway operations in Canada are carried out in maximum safety."

## REASON FOR RISK ASSESSMENT

On November 10, 1979, a Canadian Pacific 106-car freight train carrying dangerous chemicals derailed at Mississauga, Ontario, causing explosions and fires and leakage of chlorine gas. About 225,000 residents were forced out of their homes. Damage was conservatively estimated at \$68,700,000.

Other derailments followed, including another CP train carrying deadly hydrofluoric and hydrochloric acids, which forced evacuation of about 1,500 people in a sparsely-populated area near Orillia, Ontario, on February 28, 1982.

Public fears escalated and in reaction the Railway Transport Committee pledged a full inquiry into the rail risks of the heavily-populated Metropolitan Toronto area. It appointed Mr. Keith Post, CTC Regional Director, and Dr. Ian Burton, chairman of the Environmental Institute of the University of Toronto, to undertake this study.





The document produced by Mr. Post and Dr. Burton, commonly known as the Burton-Post Report, concluded that the gravest risks to the public lie in the CP North Toronto Subdivision which runs through the very heart of Metro Toronto, flanked by the most densely-populated areas of all Canada. Through this corridor flow huge quantities of dangerous and explosive chemicals day and night, including so-called EMPTY tank cars which carry substantial residues of dangerous chemicals at a high speed uncontrolled by the Canadian Transport Commission.

The Burton-Post Report made this concluding statement:

"Unless some action is taken, the risk factors will continue to increase and potential for catastrophe that already exists will become steadily greater."

Two recommendations made by the Burton-Post Report suggested a short-range diversion of some of the CP Rail chemical traffic to a CN line north of Toronto and a longer-range examination of new rail routes to permit the transport of dangerous commodities around population centres.

The RTC called for public comment and finally on May 15, 1985, issued a Decision rejecting the short-range diversion proposal and throwing the question of long-range relocation back to the municipalities, stating only that the RTC would provide technical advice if the municipalities and the province came to some agreement on relocation in which the railway involved would suffer no loss.

(APPENDIX II)





= It is the contention of the M-TRAC rail safety organization that the RTC, in throwing the issue back to the municipalities, was well aware of the contentiousness of the issue and the difficulty of reaching an agreement, with each municipality and region seeking to protect itself against the threat of a volume of chemical rail traffic that might lead to a local disaster.

It is the view of the M-TRAC organization that Parliament had entrusted the Canadian Transport Commission, and through it, the Railway Transport Committee, with the obligation of protecting the public to the extent of maximum safety and vested in the Canadian Transport Commission unlimited power to carry out its obligations.

Indeed, in the course of responding to the RTC request for comment on the Burton-Post Report, the government of Metropolitan Toronto proposed an immediate slowdown in the speeds of the chemical traffic on the CP North Toronto Subdivision, including both LOADED and EMPTY tank cars. (APPENDIX III)

This appeal for an immediate slowdown in the high-density area was repeated by other bodies responding to the RTC but the RTC did not accept these appeals and made no comment on them in the May 15, 1985, Decision.

Nor did the RTC make any comment on the Burton-Post Report warning of the potential for catastrophe, or order any other measures to reduce the risk in the Toronto area.



Instead, the RTC in its Decision signed by two commissioners recalled tank car improvements over the years--repeating what the Burton-Post Report had already accepted--and adding that the track had been improved in the North Toronto Subdivision.

Nowhere in the May 15, 1985, Decision was there any reference to the RTC's obligations to the public or to any actions the RTC might take on its own to reduce the load of chemical traffic in that high population area.

Furthermore, the RTC accepted estimated diversion cost figures provided by the railways without subjecting these figures to an independent study or opening these figures to the public for comment, thereby raising the possibility of bias.

The RTC did offer to consider any further submissions that might be made on the safety situation in the Toronto area and placed a deadline on such submissions of October 1, 1985, but made no commitment on when such submissions might be reviewed and acted upon or whether in fact any action would result. (APPENDIX IV)

It is the view of the M-TRAC organization that the public cannot depend or have confidence in the RTC in the matter of public risk in the haulage of dangerous chemicals through the Toronto area and must look to the Governor in Council for natural justice and reasonable protection in the face of a rising risk.





RTC INTERNAL COMMENT

In mid-1985 M-TRAC discovered that the RTC had conducted an internal study of the feasibility of rail relocation outside Toronto. This study, conducted by the Chief of the Engineering Section of the RTC, concluded that while relocation of Special Dangerous Commodity rail tank car traffic is feasible from an engineering standpoint, "the political feasibility is questionable."

This study states: (APPENDIX V)

"There is no doubt but citizens on the route, although not great in numbers, will be very vocal in their resistance. It would require great determination on the part of any governments attempting to implement it. The clamor would likely be greater then (sic) the present clamor from residents on existing SDC routes."

The study also states:

"Statistics based on history do not support large expenditures of resources to prevent dangerous commodity accidents."

A further argument in this internal study attempts to compare fatalities from propane and chlorine tank car accidents in the United States with all the automobile fatalities in every community and every state in all of the United States and concludes that the far larger number of automobile fatalities provides further reason why tank car relocation should not take place.





M-TRAC submits that this RTC internal study is in effect a distortion of the situation. In the United States the total number of automobiles on the roads at any one time would outnumber the number of propane and chlorine rail tank cars by the tens of thousands. The impact of chlorine and propane tank car spills raises issues of contamination and property destruction as well as instant death.

As for the argument that history does not support large expenditures of resources to prevent dangerous commodity accidents, this is probably one of the vilest distortions of all. Vast sums have been spent on both sides of the Canada-U.S. border to improve the structure of tank cars to prevent the horrors that have studded the transport of toxic and explosive chemicals. The improvements are gratefully acknowledged but they simply are not sufficient to warrant complacency.

Why did this internal RTC study make such a statement? And why would it place emphasis on the political consequences of attempting to rectify a very serious existing problem? What business has the RTC staff delving into politics when the mandate of the RTC is to ensure that the rail operations of Canada are conducted in maximum safety?

M-TRAC contends that this internal RTC study was designed for one purpose: to twist the very serious Toronto rail situation out of its socket and make the solution so impossible that no reasonable person would dare demand risk reduction.



## CONCLUSION

Each year the volume of toxic and explosive chemicals hauled through the high-density area of Metropolitan Toronto is increasing. The trains are growing longer and heavier. As the Burton-Post Report concluded, the most serious situation exists in the CP North Toronto Subdivision. In this area, which cuts right through the heavy population of downtown Toronto, evacuation of people in the event of a serious chemical spill has been ruled virtually impossible. In the event of a repetition of the Mississauga derailment in the downtown area, thousands of people would be at risk.

The M-TRAC organization contends that the RTC Decision of May 15, 1985, offers no real solution to the existing problem. Even the very basic plea by the Metropolitan Toronto government that speeds of these chemical trains be reduced has been ignored by the RTC May 15, 1985, Decision.

The offer by the RTC to receive further suggestions for safety improvement can be seen as no more than a gesture which carries no guarantee of action.

Under the Charter of Rights and under common law which recognizes a citizen's rights to natural justice, the M-TRAC organization pleads with the Governor in Council to review the May 15, 1985, Decision of the RTC and provide at least some temporary measures of reducing the existing chemical traffic risks to the point of ordering speed reductions in the high-density areas of Metropolitan Toronto while more permanent solutions are sought.











## RAILWAY TRANSPORT COMMITTEE

INITIAL REPORT OF THE RAILWAY SAFETY INQUIRYINTRODUCTION

Among the duties imposed upon it by the Railway Act and the National Transportation Act, the Railway Transport Committee has the obligation of ensuring that all railway operations in Canada are carried out in maximum safety.

Between 1967 and 1970 the Committee had watched with growing concern an increase in the number of serious accidents on Canadian railways. This gave cause for anxiety, not solely in absolute terms, but also because accidents involving modern, heavier tonnage trains were of correspondingly greater magnitude than had been the case in the past. Another factor of grave concern was the rapidly increasing involvement in railway accidents of cars carrying a wide variety of dangerous commodities whose cargo, if accidentally released, could pose a serious hazard not only to railway employees but also to the lives and property of the public.

Early in 1970 it became apparent that the increase in accidents which began in 1967 was not of a transitory, but





Complicated, technical rules of law are involved, including those affecting the rights of individuals who share responsibility for railway accidents, and for this reason the Committee heard legal argument from counsel for CRLA and for the railways, and will issue its ruling on this question in the near future.

(signed)  
D.H. JONES

Chairman

(signed)  
J.M. WOODARD

Commissioner

(signed)  
RAY MARCH

Commissioner

OTTAWA, April 19, 1972.











## RAILWAY TRANSPORT COMMITTEE

May 15, 1985

DECISION

IN THE MATTER OF the Railway Act (R.S.C. 1970, c. R-2) and the National Transportation Act (R.S.C. 1970, c. N-17);

IN THE MATTER OF the Transportation of Dangerous Commodities by rail; and

IN THE MATTER OF the Report entitled "The Transport of Dangerous Commodities by Rail in the Toronto Census Metropolitan Area: A preliminary Assessment of Risk" prepared by Ian Burton and Keith Post (hereinafter referred to as the "Burton-Post Report").

File No. D.C. 30.7

### BACKGROUND

In June 1982, the Railway Transport Committee undertook a study of the transport of dangerous commodities by rail in the Toronto Census Metropolitan Area. This study was carried out by Dr. Ian Burton, an independent consultant and Mr. K. Post, Ontario Regional Director of the RTC. Their report was tabled at the RTC meeting of May 4, 1983.

The report contained two recommendations for the Committee's consideration.

#### Recommendation No. 1

It is recommended that consideration be given to diverting the flow of special dangerous commodities off the Galt and North Toronto Subdivisions of CP Rail, and rerouting them along the York Subdivision of C.N.R., such rerouting will require the making of some new connections between CN and CP tracks. The feasibility of this rerouting should be examined as a matter of urgency by the Canadian National and Canadian Pacific Railways.

#### Recommendation No. 2

The rerouting of special dangerous commodities would substantially reduce the present level of risk, but it is only a palliative and temporary measure. It is suggested that the interested parties initiate an examination of the possibility of railway relocation so that new routes may be provided to permit the transport of dangerous commodities around population centres.

Before examining the feasibility of rerouting or examining the possibility of relocation, the Committee recognized the significant impact which either action would have on the municipalities affected. The Committee decided that, prior to giving further consideration to the matter the comments of municipalities affected, the railways and other interested groups should be requested and the Committee ordered distribution of the report inviting submissions.



## RECOMMENDATION NO. 1

The Burton-Post report establishes that the risk level encountered in the transport of dangerous goods by rail is low in relation to risks accepted by the Canadian public in other areas. For example, the individual risk from the transport of chlorine by rail is seventeen times less than the risk of being struck by lightning and only slightly greater than the risk of a person being killed on the ground by a crashing aircraft. This comparison is based upon historic average data for rail accidents throughout the railway network. It does not take into account improvements which have been made nation-wide in reducing risk associated with the transport of dangerous commodities in recent years nor differentiate for those sections of the rail network where extraordinary risk reductions have been put in place.

Through its regulation making powers and monitoring procedures for compliance, the Railway Transport Committee has taken considerable action on a nation-wide basis to reduce the risk involved in the transport of dangerous commodities. These were addressed at length in the Burton-Post Report and include:

- 1) Roller bearing retrofit program to equip the Canadian owned fleet of railway cars with roller bearings to reduce the risk of journal failure such as occurred at Mississauga.
- 2) Double-shelf couplers to prevent or deter unintentional uncoupling of cars during train operations, accidents and the resultant punctures in the heads of adjoining cars.
- 3) Application of head shields on specific tank cars.  
This is a program equipping tank cars which carry certain hazardous commodities, with extra resistance to penetration during derailments, reducing the possibility of discharge of the contents.
- 4) Provision of thermal protection on specific tank cars.  
This program equips most cars which carry compressed gases with insulation. This insulation will protect the car and contents in a fire situation so that additional time is available to evacuate people from the scene and so reduce the possibility of death or injury.
- 5) Provision of bottom fitting protection on certain tank cars.  
This program has been carried out to reduce the possibility of fittings which are located in the bottom of some tank cars from being sheared off or destroyed in a derailment, releasing the contents.
- 6) Development of a prescribed mechanical inspection by qualified personnel for all rail cars in a train.

In addition, the Committee has established a program of "gateway inspections" for all trains carrying special dangerous commodities as they enter populated areas. For all cities in Canada with a population in excess of 50,000, an inspection is carried out generally by hot box and dragging equipment detector and, if this is not available, a mechanical inspection is carried out by railway employees. These inspections must be repeated at intervals of every twenty miles in large populated areas. In addition, in all Census Metropolitan Areas with population over 100,000, trains carrying special dangerous commodities are not allowed to exceed a speed of 35 mph. The requirements for gateway inspections will be extended to other urban areas with population over 10,000 on October 1, 1987; however, in practice many of these smaller urban areas are already receiving this protection.





may make an application to the Railway Transport Committee for such orders as may be necessary in order to carry out such plans. In this regard, the Railway Transport Committee may, *inter alia*, require a railway company to cease to operate over any line of railway within an urban area and may require the removal of tracks, buildings and other structures from lands occupied by a railway company within such urban area. The Railway Transport Committee must be satisfied, however, that the government of a province and of each municipality have caused all relevant provincial or municipal laws, necessary to carry the plan into effect, to be passed. The Committee is also required to ensure that the railway company neither benefits nor loses financially from implementation of the plan.

There is also provision under this legislation for federal relocation grants. However, those are authorized by the Governor in Council, not the Commission.

If an appropriate party were prepared to make a relocation application under the Railway Relocation and Crossing Act, the Railway Transport Committee would be willing to offer, through its staff, assistance in the resolution of the various technical issues that will arise and in co-ordinating discussion between the various parties involved.

### CONCLUSION

Although, as detailed earlier in this decision, a number of steps have been taken in recent years to reduce the risk of a rail dangerous commodity accident occurring and to ameliorate the effects if such an accident should occur, there is always room for improvement in this area of vital concern to the Commission, the railways and the general public. Therefore, the Committee does not view the Burton-Post Report and this decision as providing the final word on the regulation of the transportation of dangerous commodities by rail in the Toronto area. Rather, these are part of the continuing process of reviewing and assessing current safety requirements with a view to instituting improvements wherever possible.

As another step in this process, the Committee has decided to invite further submissions from all interested parties on the transportation by rail of dangerous commodities in the Toronto Census Metropolitan Area with those submissions to cover suggestions and recommendations not already addressed in the Burton-Post Report or in the Inquiry into the Failure of Tank Car UTLX 98646 in MacMillan Yard. Parties intending to make submissions are requested to file them by October 1, 1985.

(signed)

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J.F. Walter  
Chairman  
Railway Transport Committee

(signed)

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M. Landers  
Commissioner







Clause embodied in Report No. 13 of The Transportation Committee, as adopted by the Council of The Municipality of Metropolitan Toronto at its meeting held on October 25, 1983.

1

**RESPECTING THE TRANSPORT OF DANGEROUS COMMODITIES BY  
RAIL IN THE TORONTO CENSUS METROPOLITAN AREA.**

*so that the recommendations adopted by the Metropolitan Council would read as follows:*

- "(i) that Council fully endorse the objectives of the Burton-Post Report entitled 'The Transport of Dangerous Commodities by Rail in the Toronto Census Metropolitan Area: A Preliminary Assessment of Risk';*
- (ii) that Council urge the Railway Transport Committee to approve the said objectives of the report at its earliest possible moment;*
- (iii) that Council urge the Railway Transport Committee to proceed forthwith to find and implement a new route which would reflect Recommendation No. 2 of the Burton-Post Report;*
- (iv) that the Canadian Transport Commission be urged to produce ways and means of implementing the recommendations at its earliest possible moment, and that the Metropolitan Council be kept informed of each stage of such implementation; and*
- (v) that the Canadian Transport Commission be urged, in the meantime, to introduce regulations through the Minister of Transport Canada on the following requests from Metropolitan Toronto, (a), (b) and (c) which are still outstanding:*
  - (a) ensure that 100 per cent. of the roller bearing conversion programme is completed by 1987, with 75 per cent. of such programme completed by 1984;*
  - (b) review the matter of population requirements in respect of gateway inspections and train slow downs, and re-define the wording for 'census Metropolitan Areas' in order to cover all the larger populated areas;*
  - (c) lower the 35 mile per hour speed regulation for trains carrying special dangerous commodities, including chemical empties, to 25 miles per hour; and*
  - (d) 'candy-stripe' cars that carry dangerous commodities to allow rapid identification in case of accidents."*









GLOBE and MAIL May 29, 1985

Canadian Transport  
CommissionCommission canadienne  
des transports**CANADIAN TRANSPORT COMMISSION  
RAILWAY TRANSPORT COMMITTEE****NOTICE**

The Railway Transport Committee (RTC) of the Canadian Transport Commission is inviting interested persons and organizations to file submissions, on or before October 1, 1985, outlining proposals for improvements in the transportation of dangerous commodities by rail in the Toronto Census Metropolitan Area.

The RTC has paid considerable attention in recent years to the regulation of the transportation of dangerous commodities by rail in general, and specifically in the Toronto Census Metropolitan Area.

In a decision released May 24 on a report entitled "The Transportation of Dangerous Commodities by rail in the Toronto Census Metropolitan Area: A Preliminary Assessment of Risk" that had been prepared by Ian Burton and Keith Post (the Burton-Post Report), the Committee outlined the numerous regulatory actions already undertaken to reduce the risk associated with the movement of this traffic. The decision also referred to the continuing process of reviewing and assessing current safety requirements with a view to instituting improvements wherever possible, and to its intention to consider additional related safety measures not already addressed in the Burton-Post Report or in the Inquiry into the Failure of Tank Car UTLX 98646 in MacMillan Yard.

Submissions should identify the specific problem (or problems) addressed, and the suggestion or recommendation for improvement should be as specific and detailed as possible. Where possible, the feasibility or practicability of implementing the proposal should also be addressed. All submissions must contain the name, address and telephone number of the person or organization concerned.

Persons or organizations filing submissions may be asked for further detail regarding their submissions.

Once all submissions have been received, the Committee will decide on the appropriate procedure for consideration of whether or not to adopt any or all of the suggestions and recommendations.

All communications and/or submissions should be addressed to: John O'Hara, Secretary, Railway Transport Committee, Canadian Transport Commission, Ottawa, Ontario K1A 0N9, Tel: (819) 997-7046, Telex: 053-4254.

**Canada**









## MEMORANDUM

## NOTE DE SERVICE

Dr. J. Heads,  
Executive Director,  
Railway Transport Committee,  
Ottawa, Ontario.  
K1A 0N9

L.B. MacDonald,  
A/Regional Director - Ontario,  
Railway Transport Committee,  
Toronto, Ontario.

SECURITY CLASSIFICATION DE L'UNITÉ

COPIER LE VOTRE INTEREN

COPIER LE VOTRE INTEREN

DATE

1984-07-10

FROM  
DE

SUBJECT  
OBJET

Rerouting of Dangerous Goods, Metropolitan Toronto

Attached please find report as compiled by J.H. Keeder, Ontario Region,  
relative to above subject matter.

*L.B. MacDonald*  
L.B. MacDonald,  
A/Regional Director - Ontario,  
Railway Transport Committee.



L.B. MacDonald,  
A/Regional Director,  
Railway Transport Committee,  
TORONTO, ONTARIO.

SUMMARY OF REPORT RE RELOCATION OF  
CPL AND CN DANGEROUS  
COMMODITIES AT TORONTO

A study has been made indicating the feasibility of providing a railway line around Toronto which would be suitable for relocation of CP and CN special dangerous commodities.

Three alternate routes were studied as shown on attached maps. For a line which would handle special dangerous commodities only, costs are from \$92.5 million to \$126 million, depending on route with \$150 million to be added for separation of all highway crossings. Annual cost is \$1 million.

The study indicates relocation is feasible physically but suggests that it may not be feasible politically.

The cost of complete relocation of both railways through traffic is estimated at \$933 million to \$1012 million depending on route. Annual cost has not been estimated.

The report strongly recommends against any relocation as it would not be cost effective.



## REPORT

A previous study showed the feasibility and cost to relocate most of the CP through Special Dangerous Commodity (SDC) cars around Toronto by rerouting them between Burlington and Palgrave on the CN Halton Subdivision and a reconstructed CN Beeton Subdivision. The present study shows the feasibility and estimates the cost to reroute all of the through CPL SDC cars around Toronto and also all through CN SDC cars as well. This could be achieved by rerouting them as above between Burlington and Palgrave and by rerouting them between Palgrave and Bowmanville as follows:

1. on a new track from Palgrave to Claremont and
2. on existing CP Havelock Subdivision between Claremont and Raglan and
3. on a new track between Raglan and Bowmanville.

Such a route between Burlington and Bowmanville would intersect all CN and CP lines through Toronto. All through SDC cars on incoming trains would be set off at the intersection points, where they would be picked up by a joint CN-CP train assignment on the rerouting route which would drop them at their destination subdivisions where they would be picked up by outgoing trains.

A single track route is contemplated to be operated by one train assignment each way per day. It would operate under Manual Block System (MBS) so that no track signals would be provided but crossing protection devices consisting of flashing lights and bell would be installed at all level crossings. Crossings of railways would be grade separated as well as all provincial highways. Topography may dictate additional separations as well. Maximum track grade to be one per cent compensated for curvature and maximum curves to be 3 degrees.

It should be emphasized that this line is not capable of carrying the full traffic of even one of the railways. However, at considerable additional cost, addition of tracks, yards and signalling could be provided to carry the full traffic of the railways.





Three alternate routes have been investigated between Palgrave and Claremont as follows:

Line A. A nearly straight alignment passing south of Aurora.

Line B. A line passing between Aurora and Newmarket.

Line C. A line passing north of Newmarket.

Only one alignment is shown for the route between Raglan and Bowmanville because it is considered for topographic reasons there is insufficient room for substantially different routes.

Routes were plotted on, and profiles were taken from 1: 50000 contour maps with 25 ft. contour interval. These are considered adequate for the purpose but not for details.

Estimated costs are as follows:

<u>REROUTE SDC CARS ONLY</u>			
	<u>First Cost</u>	Annual Cost excluding Authorization of First Cost	<u>First Cost For full relocation</u>
Line A	\$ 100 M	1.0 M	M
Line B	\$ 122 M	1.0 M	998.8M
Line C	\$ 126 M	1.0 M	1012.6 M

If such a relocation were made, there would be more hazard created by new public crossings resulting in ordinary crossing accidents with a proportion involving dangerous commodities than the existing dangerous commodities risk. If the money expended is not to be counter productive, roughly \$150 M, should be added to the cost as above to separate highway crossings except this cost is already included in column 4.

These estimates are preliminary and are not based on detailed information. To obtain detailed estimates, an areal survey should be made. However, as this would cost roughly \$150,000 for one line only, it is not recommended unless there is some indication that there is a party or group of parties willing to expend the kind of money indicated above for the rerouting and a preferred route is indicated.



There is considerable building taking place along the routes resulting in property costs rising faster than inflation. The above figures are 1984 prices and would have to be adjusted in a detailed estimate for rising costs and for a particular schedule.

While the relocation of SDC cars is feasible from an engineering emergency standpoint, the political feasibility is questionable. There is no doubt but citizens on the route, although not great in numbers, will be very vocal in their resistance. It would require great determination on the part of any governments attempting to implement it. The clamor would likely be greater than the present clamor from residents on existing SDC routes.

If it were built, it would give rise to further pressure to reroute all railway traffic onto it. The rough cost to construct sufficient railway plant to deroute all traffic is given above. Annual costs would take a long study to determine. I believe they would be very substantial. It would likely give rise to numerous other requests of municipalities to reroute them around their communities. While it is not considered SDC cars, would be greatly delayed if rerouted as above around Toronto, a multiplicity of such reroutings certainly would.

To reroute all through traffic around Toronto would have the effect of putting Toronto on branch lines. A major railway selling point is main line-service. That is, the possibility of stopping any of numerous passing trains for rush cars required to continue production or customer's production.

I consider that the removal of main line service from Toronto would have a devastating effect on industry and the railway. It would probably mean eventual decline of existing industrial areas and growth of new areas along the relocated main line. Residencies etc. would follow and the eventual result would be that the problem is not solved but only relocated, but not without serious difficulties. I feel I cannot recommend against full relocation too strongly.

Statistics based on history do not support large expenditures of resources to prevent dangerous commodity accidents. The argument is made that history is all very well, but statistics would be radically altered in the event of a major catastrophe. The magnitude and frequency of catastrophes required to do this was examined.





METROPOLITAN  
TORONTO

TORONTO

OSIATA

WHIRY

DARLINGTON  
PROVINCIAL PARK

Total Rerouting Route 404  
11.70



Mississauga

New Toronto

Long Branch

Port Credit

Long Point

Long Point

Long Point

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Long Point

Long Point

Long Point

Long Point









Table 4 of the Burton-Post report shows that auto fatalities in the U.S. per year are 55,511., versus 24.4 for Propane Transportation and Chlorine tank cars combined.

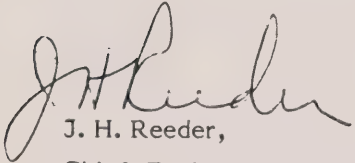
For the latter and other SDC fatalities to be comparable with auto accidents, a calamitous accident with 55,000 fatalities would have to occur every year in the United States or for example, two of 27,500 each. Alternately accidents with fatalities of 110,000 every two years or 550,000 every 10 years or 2,750,000 every 50 years would be equivalent. The proposition that a single calamity would change statistics based on history so as to make money spent on relocation worth while is clearly not valid. A single calamity would have to be too large. Such an historic change could only come about from a series of catastrophic accidents. There would be a trend, and there is no merit in expending money unless that trend becomes evident. Nor does it appear that any trend remotely approaching this magnitude will ever develop. It is therefore concluded that relocation of SDC cars is not worthwhile.

As indicated above, there would be far more value received from money expended for other hazards, notably highway ones than reduction of the minimal dangerous commodity risk. Consequently, further money spent for relocation studies re relocation is not recommended.

It is suggested that crossing protection and elimination of crossings would give much higher value for the money in eliminating hazard, and would have other advantages such as convenience as well. It is noted that considerable success has attended efforts in this direction recently in the U.S. The May 1983 issue of Railway track and structures reported 100 fewer crossing fatalities in 1982 than 1981 whereas the total rail Dangerous Commodities fatalities are probably less than 25.



It is possible to be insurance poor by expending excessive resources to take care of possible misfortunes, so that the quality of life is diminished. It is suggested that if money is available it should be spent to improve quality of life, for example by attacking the acid rain problem, or medical research.

A handwritten signature in dark ink, appearing to read 'J. H. Reeder', written in a cursive style.

J. H. Reeder,  
Chief, Engineering Section,  
Railway Transport Committee.

JHR/nt



## ESTIMATED COST

LINE A

Earthwork	\$ 5,691,937
Ditches	79,990
Crossings	1,859,087
Fencing	791,570
Subballast	409,080
Track (Ballast and Up)	7,078,652
Protections (crossing)	1,815,000
Grade Separations	10,000,000
Railway Crossing Separations	4,500,000
Bridges	1,000,000
Culverts	540,000
Power & Communications Crossings	570,000
Land	7,490,800
Farm Crossings	256,416
Junctions and Sidings	1,000,000
	<hr/>
	43,082,532
Engineering 15% ( x 1.15)	49,544,911
Contingencies 15% ( x 1.15)	56,975,647
Line E (see Appendix 5)	45,414,868
Total Route A	92,390,555
Alternate 3 of CP Study	7,500,000
	<hr/>
Total Cost of rerouting	99,890,555
	Say 100.M





ESTIMATED COST TO CONSTRUCT  
LINE A IN 4TRACKS (Complete Relocation)

Earthwork	\$ 9,676,292
Ditches	79,990
Fencing	791,570
Subballast	1,636,320
Track (Ballast & Up)	28,314,608
Grade Separations	86,000,000
Railway Crossing Separations	6,000,000
Bridges	1,500,000
Culverts	1,080,000
Communications & Power	570,000
Land	7,490,800
Signals	<u>144,724,580</u>
Engineering x 1.15	
Contingencies x 1.15	<u>166,433,260</u>
	<u>\$191,139,824</u>

191.1 = 3.35

56.97

Variable cost of quadruple tracking is 3.35 x cost of single track.

Fixed cost is: CP Yard \$158M

CN Yard \$233M

491

Less sale of

land and Yards 200

291M

2 Yrs. interest on

Land Sale 100

\$ 391.0

Cont'd



Cost to 4 track Havelock Sub.,

$$\frac{14 \times 191.1 \times 2.35}{34.8 \quad 3.35} = \$ \quad 53.9\text{M}$$

Cost to 4 track Beeton Sub.,

$$\frac{24 \times 191.1 \times 2.35}{34.8 \quad 3.35} = \$ \quad 94.4\text{M}$$

Cost to upgrade exist track Beeton Sub., \$ \quad 7.5\text{M}

Line E 45.4 x 3.35 (See appendix 5) \$ \quad 152.1\text{M}

4 Track Halton Sub. Milton to Silver

$$\frac{11 \times 191.1 \times 2.35}{34.8 \quad 3.35} = \$ \quad 43.3\text{M}$$

Total Fixed Cost \$ \quad 742.2\text{M}

Line A Variable Cost \$ \quad 191.1\text{M}

Total Cost of full relocation \$ \quad 933.3\text{M}



## ESTIMATED COST

LINE B

Earthwork	\$10,112,129
Ditches	87,215
Crossings	1,554,484
Fencing	863,087
Subbalast	446,040
Track (Ballast & Up)	7,718,202
Automatic protections	1,815,000
Grade Separations	20,000,000
Railway Crossing Separations	4,500,000
Bridges & Culverts	1,555,000
Power & Communications	
Crossings	645,000
Farm crossings	399,236
Land	6,760,400
Sidings & Connections	<u>1,500,000</u>
	57,955,793
x 1.15 (15% Engineering)	66,649,161
x 1.15 (15% Contingencies)	76,646,535
Line E (see appendix 5)	<u>45,414,868</u>
	\$122,061,403
4 Track variable cost 76.6M x 3.35=	\$ 256.6M
Fixed costs see (Appendix 2)	\$ 742.2M
Total Cost for full relocation	\$ 998.8





ESTIMATED COST  
LINE C

Earthwork	\$15,628,640
Ditches	93,730
Crossings	1,563,803
Fencing	92,787
Subbalast	479,520
Track ( Ballast & Up)	8,297,534
Auto Protections	2,200,000
Grade Separations	18,000,000
Railway Crossing Separations	4,500,000
Bridges and Culverts	1,540,000
Power & Communications crossings	600,000
Farm Crossings	
Land	7,623,600
Sidings & Connections	<u>429,471</u>
	\$61,049,085
x 1.15 ( Engineering 15%)	70,206,447
x 1.15 ( Contingencies 15%)	80,737,414
	<u>45,414,868</u>
	\$126,152,282

4 tracks variable cost is  $80.7 \times 335 = \$270.3$

Fixed cost see ( Appendix 2 ) 742.2

Total cost for full relocation \$1,012.5M



ESTIMATED COST  
 Line E (Raglan to Newcastle)  
 (Common cost to be added to  
 Lines A, B. & C.

Earthwork	\$ 8,911,738
Ditches	45,144
Crossings	1,379,581
Fencing	446,752
Subballast	230,880
Track (Ballast & Up)	3,995,109
Grade Separations	14,000,000
Railway Crossing Separations	1,500,000
Bridges	1,300,000
Culverts	285,000
Communications & Power	300,000
Farm crossings	112,962
Land	833,000
Sidings & Connections	<u>1,000,000</u>
	\$34,340,166
x 1.15 ( Engineering 15%)	39,491,190
x 1.15 ( Contingencies 15%)	\$45,414.868







